Air Force Research Laboratory|AFRL

Science and Technology for Tomorrow's Air and Space Force

Success Story

PEAPRS IS A LOW-COST SUPPLEMENT FOR AIRCRAFT COMMUNICATION

The Precision Emergency Automated Position Reporting System (PEAPRS) is a low-cost supplement to the standard method of aircraft communication. During an emergency airborne situation, this system is triggered with a sensor, or pilots or other crew members can activate it by pressing a button, which automatically engages the PEAPRS equipment.

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Accomplishment

In an effort to discover alternative ways to communicate with aircraft in trouble, the Sensors Directorate planned and conducted an experiment using amateur radio operators within the international Automated Position Reporting System (APRS) network. Directorate researchers measured the timeliness and accuracy of the amateur community's reports. The directorate received reports from over 200 amateur radio operators from across the country and around the world via telephone, APRS message, and e-mail within one minute of transmission of the first emergency beacon.

Background

The directorate's test involved an aero club aircraft with a simulated emergency flying over upstate New York. The test demonstrated that aircrew members could use the APRS system to supplement the current communications that an aircraft, either commercial or private, uses to convey an emergency is in progress.

APRS, a form of packet radio, sends packets of digital information via high frequency, very high frequency (VHF), or ultra high frequency (UHV) radio across the country and around the world using digital repeaters. The packets in APRS contain position data, weather data, and sometimes a text message.

The directorate's test simulated a simple mechanical or electrical defect that required the pilot to make an emergency landing. This technology is also useable during a catastrophic disaster or terrorist hijacking, which occasionally makes the primary communications, generally VHF or UHF airband radios and interchange file format transponders, intentionally or unintentionally inoperative.

Sensors
Emerging Technologies

Additional information

To receive more information about this or other activities in the Air Force Research Laboratory, contact TECH CONNECT, AFRL/XPTC, (800) 203-6451 and you will be directed to the appropriate laboratory expert. (03-SN-04)